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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,957	11/24/2003	Jonah Harley	10030477-1	9406
57299	7590	03/18/2008		
Kathy Manke Avago Technologies Limited 4380 Ziegler Road Fort Collins, CO 80525			EXAMINER LIANG, REGINA	
			ART UNIT 2629	PAPER NUMBER
			NOTIFICATION DATE 03/18/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/723,957	HARLEY ET AL.	
	Examiner	Art Unit	
	Regina Liang	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 31-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 31-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/12/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is responsive to amendment filed 1/28/08. Claims 31-44 are pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

3. Claims 42, 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 42 and 43 recite the limitation “the plurality of springs”. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

4. Claims 31, 35, 36, 38, 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherriff (GB 2 247 938 hereinafter Sherriff) in view of Hagermoser (US 2005/0052426 hereinafter Hagermoser).

As to claim 31, Sherriff discloses a pointing device, comprising:

- (a) a moveable puck configured to move laterally within a puck field of motion ("PFOM") in response to a user applying a lateral force thereto (see Figs. 1-3),
- (b) a position detector (capacitor plates 17, 18 in Figs. 4 and 5; capacitor plates 67, 68 in Figs. 15, 16) configured to measure puck position within the PFOM as the puck is moved

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laterally by the user, the position detector further being configured to report the puck position to a processor configured to cause the movement of a cursor on a display (page 1, line 4-13, inherent the control device for controlling the cursor movement), the tracking or movement of the cursor corresponding to lateral movement of the puck by the user within the PFOM; and

(c) a puck return mechanism (springs 30 in Figs. 7 and 8, and see page 9, lines 14-24) attached to the puck and configured to return the puck to, or hold the puck in, a resting position within the PFOM when the user stops applying, or does not apply, pressure to the puck;

Sherriff also discloses the pointing device having a pressure sensing system configured to sense a vertical pressure applied by the user (page 2, lines 26-34; pages 3, line 32 to page 4, line 4; page 11, lines 28-31 for example). Sherriff does not explicitly disclose to actuate the movement of the cursor corresponding to lateral movement of the puck when the user applies vertical pressure to the puck that is greater than or equal to a first predetermined vertical pressure level and to cause the cursor to stop tracking when the user applies vertical pressure to the puck that is at least one of less than the first predetermined level and no vertical pressure. However, Hagermoser teaches "At a predetermined or calibrated level of capacitive coupling, the button can be considered "pressed", allowing a "button down" signal to be sent. when the measured capacitive coupling falls below the threshold, a "button" up" signal can be sent" (lines 13-17 in [0028]; the "button down" signal corresponds to an actuation signal when the user applies pressure to the button that is greater than the threshold, the "button up" signal corresponds to stop the actuation when the user applies the pressure to the button that is less than the threshold). Thus, in view of Hagermoser's teaching, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the pressure sensing system of Sherriff to

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cause the actuation of the cursor movement corresponding to lateral movement of the puck when the user applies pressure to the puck that is greater than the first predetermined pressure level (threshold) and to cause the cursor to stop track when the user applies the pressure to the puck that is less than the first predetermined pressure level (threshold) as claimed since this prevents any unintentional or undesired cursor movement.

As to claim 35, Sherriff discloses the position detector for detecting the magnitude of the mutual capacitance (page 3, line 36 to page 4, line 1), it is inherent that the position detector of Sherriff comprising a capacitance measurement circuit.

As to claim 36, Sherriff teaches the position detector for detecting the magnitude of the mutual capacitance (page 3, line 36 to page 4, line 1), Hagermoser teaches "capacitive coupling can be measured by measuring current that flows through the completed circuit that includes the conductive touch implement and the conductive sensing elements of the sensor" (lines 10-13 in [0028]). Thus, the position detector in Sherriff as modified by Hagermoser would have an electrical current measurement circuit.

As to claim 38, Sherriff teaches the pressure sensing system comprises a capacitance measurement system (page 3, line 34 to page 4, line 1; and page 11, lines 28-31).

As to claim 41, Figs. 7 and 8 of Sherriff teaches the puck return mechanism comprises a plurality of springs.

5. Claims 32, 33, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherriff and Hagermoser as applied to claim 31 above, and further in view of Louis (US 4,719,455).

As to claim 32, Sherriff also discloses the moveable puck comprising at least one user sensor ("click" switches 41, 69, 81, 91, Figs. 11, 14, 17 and 19). Sherriff as modified by Hagermoser does not disclose the pressure sensing system is configured to sense a second predetermined vertical pressure level applied by the user to the puck, the second predetermined vertical pressure level being greater than the first predetermined pressure level. However, Louis teaches a pointing device having a moveable puck for controlling the cursor movement, the puck having a pressure sensor (13) for sensing the magnitude of the pressure on the sensor, and the pointing device configured to interpret the magnitude of the pressure as graphic commands (see col. 6, lines 5-15; the magnitude of the pressure in Louis corresponds to the second predetermined vertical pressure level, so that the controller of Louis interprets the magnitude of the pressure as graphic commands as the magnitude of the pressure has to be greater than a predetermined pressure level). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the pressure sensing system of Sherriff as modified by Hagermoser to have a second predetermined pressure level as taught by Louis such that the user is able to provide variable controls dependent upon the degree of depressive pressure user applied to the pressure sensor.

As to claim 33, Sherriff teaches the system is configured to implement a "click" function when the user applies vertical pressure to the puck, and Louis teaches to implement a graphic commands when the user applied pressure to the sensor that is greater than or equal to the second predetermined pressure level. Thus, Sherriff as modified by Hagermoser and Louis would have the limitation as claimed.

As to claim 37, Louis teaches the position detector of the puck comprises an optical imaging system (col. 5, lines 36-52).

6. Claims 39, 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherriff and Hagermoser as applied to claim 31 above, and further in view of Armstrong (US 6,198,473).

As to claim 39, Sherriff as modified by Hagermoser does not disclose the pressure sensing system comprises a compressible foam layer whose electrical resistivity varies according to the amount by which the foam is compressed by the user. However, Fig. 15 of Armstrong teaches the pressure sensing system (52, 54) comprises a compressible foam layer (pressure-sensitive variable conductance material 54) whose electrical resistivity varies according to the amount by which the foam is compressed by the user (col. 21, lines 44-48, lines 65-68, col. 22, lines 25-30 for example). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the pressure sensing system of Sherriff as modified by Hagermoser to comprise a compressible foam layer as taught by Armstrong so as to provide an optimum user control device in a low cost, ergonomically correct, familiar and desirable finger depressible sensor arrangement.

As to claims 42, 43, Fig. 7 and 8 of Sherriff teaches the plurality of springs comprises at least four spiral springs.

As to claim 44, it is inherent the springs in Sherriff applies a force that damping oscillations in the puck position when the puck returns to the predetermined area in the puck field of motion (e.g., expand and shrink).

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7. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sherriff and Hagermoser as applied to claim 31 above, further in view of Maatta et al (US 6,762,748 hereinafter Maatta).

As to claim 40, Figs. 7 and 8 of Sherriff disclose the device having a puck return mechanism. Sherriff as modified by Hagermoser differs from the claim in that the return mechanism not having a plurality of magnets. However, Maatta teaches a compact low profile magnetic input device having a restoring mechanism comprises a first magnet (M 1) (in Figs. 2, 4a) and a second magnet (M2) for returning the puck to the centered position (see Figs. 2, 4a, and col. 5, lines 24-53; Maatta states "the two attracting magnets exhibit a tendency to return to the state of maximum combined flux thus the magnets will tend to return to this centered position despite any applied external forces"). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the return mechanism of Sherriff as modified by Hagermoser to employ the magnets as taught by Maatta in order to provide a compact low profile pointing device (col. 1, lines 7-9 of Maatta).

8. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sherriff, Hagermoser and Louis as applied to claim 33 above, and further in view of Armstrong.

As to claim 34, Sherriff as modified by Hagermoser and Louis does not disclose the "click" function is implemented with tactile feedback to the user. However, Armstrong teaches it is well known in the art that the pressure sensor in an input device supply the user with a tactile feedback on actuation of the sensor (col. 9, lines 14-20). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sherriff as modified

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by Hagermoser and Louis to employ a tactile feedback to the user when the “click” function is implemented since Armstrong teaches “Benefits of the tactile feedback include a reduction of potential confusion on the part of the user as to when the sensor is initially actuated and de-actuated” (col. 9, lines 17-20).

Response to Arguments

9. Applicant's arguments with respect to claims 31-44 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Regina Liang/
Primary Examiner, Art Unit 2629